National Park Service
U.S. Department of the Interior

GLACIER NATIONAL PARK
Montana
Waterton-Glacier International Peace Park

Programmatic Minimum Requirements Analysis and Minimum Requirements Decision Guide for Glacier National Park's Comprehensive Telecommunications Plan

October 2021

PART A: Is administrative action necessary to manage the area as wilderness?

DESCRIPTION OF THE SITUATION THAT MAY PROMT ADMINISTRATIVE ACTION:

Effective and reliable Land Mobile Radio (LMR) communications are critical to park operations, including law enforcement and resource management and protection, and to the protection of life safety for NPS staff and park visitors, especially during an emergency. Per NPS requirements, the park has upgraded its radio system to a digital system. The current digital technology has tighter line-of-sight requirements than the previous analog technology, with less forgiving tolerances for deviations from line-of-sight. As a result, radio coverage is insufficient or non-existent in some areas of the park due to topography, dense vegetation, inconsistent repeater links, and because signals from portable radios cannot always reach repeaters. Insufficient radio coverage limits communications for NPS law enforcement and backcountry patrols and resource monitoring, creates challenges with transmitting sensitive information, can affect emergency-response capabilities, and presents an increased safety risk to personnel. These issues have prompted the need to take administrative action to improve the park's radio system.

The park's Comprehensive Telecommunications Plan and environmental assessment (EA) (June 2021) includes actions designed to improve multiple telecommunications systems in the park, including radio communications. This minimum requirements analysis (MRA) and minimum requirements decision guide (MRDG) addresses actions included in the plan/EA designed to improve the radio communications system. This MRA/MRDG is programmatic in order to address programmatic actions in the Plan/EA. The scope and design for programmatic actions are not yet fully developed. Once the scope and design are further developed, programmatic actions would undergo additional project-level review, analysis, and compliance, including review of this MRA/MRDG (see Action Alternative 1 under Park B of this document).

1. **Describe Options Outside of Wilderness.** Can action be accomplished outside of Glacier's recommended wilderness? [Does the Wilderness Coordinator concur? ___X___]

   ☐**Yes** ☒**No** **Explain:**

While two radio repeaters are located outside the park boundary, most of the infrastructure for the park's radio communications system is located inside the park. A number of repeaters are located on high elevation sites within recommended wilderness, enabling radio signals to propagate parkwide without topographic interference. Elevations outside the park are too low to support parkwide radio communications under the current technology. Because much of the infrastructure for the park's radio system is within recommended wilderness, and since high-elevation sites necessary for parkwide transmission are in recommended wilderness, action must be taken within recommended wilderness.

2. Is action necessary to satisfy valid existing rights or a special provision that requires action?

☐**Yes** ☒**No** **Explain:**

None of the Special Provisions in the Wilderness Act are applicable to Glacier National Park.

3. Describe Requirements of Legislation, Policy, and Guidance. Does taking action conform to and implement relevant standards and guidelines and direction contained in other legislation, policy, management plans, species recovery plans, tribal government agreements, and/or other interagency agreements?

☒**Yes** ☐**No** **Explain and cite law, policy, etc.:**

The Occupational Safety and Health Act of 1970, Executive Order 12196 and 29 CFR 1960 require the heads of Federal agencies to furnish to employees with places and conditions of employment that are free from job safety and health hazards. In accordance, effective and reliable radio communications are necessary to reduce life safety risks for park employees (as well as visitors).

The current federal mandate, **Dept. Manual 377, Radio Handbook, Section 2.2.B,** requires Land Mobile Radio systems to be digital narrowband, with encryption where needed for security purposes; encryption requires digital communications. Because taking action is geared toward more functional radio communications under the digital system, it would be in conformance with the federal mandate.

NPS Management Policies, section 1.9.14 states that NPS managers must "above all, keep in mind that the safeguarding of human life must not be compromised," and that employees must have the necessary equipment to perform their duties with minimal risk. Ensuring effective and reliable radio communications is in conformance with this policy.

NPS Management Policies, section 6.3.1, requires that recommended wilderness be managed as wilderness. In accordance, any action taken would incorporate the minimum requirement and minimum tool concepts of wilderness management.

NPS Management Policies, section 6.3.6.2, requires that wilderness areas be managed for the preservation of physical wilderness resources (attributes of the natural condition, historic structures, trails and campgrounds) and to monitor the overall conditions and long-term trends of the wilderness resource. **Section 6.3.8** states that "Cultural resources that have been included within wilderness will be protected and maintained according to the pertinent laws and policies governing cultural resources using management methods that are consistent with the preservation of wilderness character and values." Taking action is in accordance because reliable radio communications are necessary to safely and effectively monitor and manage the physical attributes, conditions, and trends of the park's wilderness resource, including those associated with natural and cultural resources, trails, and campgrounds.

NPS Management Policies, Section 6.3.10.1, states that administrative facilities, including radio repeater sites, may be allowed in wilderness if they are determined to be the minimum requirement necessary to carry out wilderness management objectives and are specifically addressed in appropriate planning documents. Taking action to improve radio communications would be in conformance given the minimum requirements analysis in this document. Improvements to the park's radio communications system are included and evaluated in the park's Comprehensive Telecommunications Plan/EA.

4. **Describe how action would contribute to the preservation or degradation of wilderness character:** Is action necessary to preserve one or more of the 5 qualities of wilderness character? How would the action contribute to the preservation of or degrade wilderness character as described by the tangible qualities of wilderness character below?

Untrammeled (Wilderness is essentially free from the intentional actions of modern human control or manipulation):

Action is not necessary to preserve the untrammeled quality of wilderness character. Taking action would neither preserve nor degrade the untrammeled quality, because there would be no intentional manipulation of the biophysical environment. Action may be necessary, however, to support the ability to safely and effectively monitor this quality in remote areas as outlined in the park's Wilderness Character Monitoring Plan).

Natural (Wilderness ecological systems are substantially free from the effects modern civilization):

Action is necessary to preserve the natural condition of the park's recommended wilderness because backcountry rangers and natural resources staff who monitor, manage, and protect natural resources throughout the park, including within recommended wilderness, require reliable radio communications for safety, logistics, and efficacy. Management decisions that affect the natural condition of recommended wilderness rely on data and information obtained from backcountry patrols and resource monitoring programs. These programs are instrumental in helping park managers determine courses of actions that will best protect natural resources in recommended wilderness (such as the decision to treat a non-native invasive plant infestation in a remote area, monitoring vulnerable wildlife species whose conservation may require limitations on human activity during sensitive periods, or monitoring and restoring social trails that are damaging native vegetation at backcountry campgrounds, for example). While a robust natural resources monitoring program is currently underway in the park, monitoring efforts have at times been inhibited due to safety concerns, especially in remote areas where radio communications are insufficient. Because natural resource monitoring is integral to the protection of the natural condition of the park's recommended wilderness, and since the safe and effective continuation of monitoring operations depends in part on reliable radio communications, taking action to improve radio communications is necessary to preserve the natural condition of wilderness character.

Undeveloped (Wilderness retains its primeval character and influence, and is essentially without structures or installations, the use of motors or mechanical transport):

Action is not necessary to preserve the undeveloped quality of wilderness character in the park. Action may be necessary, however, to support the ability to safely and effectively monitor this quality in remote areas as outlined in the park's Wilderness Character Monitoring Plan.

Action would degrade the undeveloped quality if radio communications infrastructure is installed (e.g. radio repeaters) and helicopter support is used, including during future periodic maintenance.

Outstanding opportunities for solitude or a primitive and unconfined type of recreation (Wilderness provides opportunities for people to experience natural sights and sounds, solitude, risk, adventure and other attributes):

Action is not necessary to preserve this quality. Action may be necessary, however, to support the ability to safely and effectively monitor this quality in remote areas as outlined in the park's building blocks for wilderness stewardship (in process). Action would degrade opportunities for solitude if radio communications infrastructure is visible and/or helicopters are used during installation and periodic maintenance.

Other features of value (Wilderness preserves other features that are of ecological, geological, scientific, educational, scenic, or historical value):

Action is necessary to preserve other features of value. Park staff monitor and protect integral cultural features with historical value (such as historic structures and archeological sites), and iconic species and features (such as glaciers) with geological, ecological, scientific and/or educational value, and require reliable radio communications for safety, logistics, and efficacy. Management decisions that affect and preserve these features of value rely on data and information obtained from monitoring. Similar to natural resources, cultural resources and other features of value are currently monitored in the park but monitoring efforts have at times been inhibited due to safety concerns, especially in remote areas with poor radio coverage. Because monitoring is integral to the protection of features of value within the park's recommended wilderness, and since the safe and effective continuation of monitoring operations depends in part on reliable radio communications, taking action to improve radio communications is necessary to preserve this quality of wilderness character.

5. **Describe the effects to the public purposes of wilderness:** How would action support the public purposes for wilderness (as stated in Section 4(b) of the Wilderness Act) of recreation, scenic, scientific, education, conservation, and historic use?

Taking action would support the public purposes of wilderness. A functional and reliable radio communications system is necessary for certain park operations that enable the public to experience the wilderness resource. Such operations include interpretive hikes, scientific research, campground and trail maintenance, and natural and cultural resource monitoring and conservation. These operations contribute to public education, scientific research, resource conservation, recreation, and historic uses. While they are currently being implemented in the park, there is an ongoing potential for these operations to be inhibited due to safety concerns, especially in remote areas with poor radio coverage. The park's ability to coordinate and safely and effectively implement operations that support public use depends on reliable radio communications.

6. **Explain the effects to resources and wilderness character that would occur from taking NO ACTION.**

   Under no action, safety concerns, logistical issues, or reduced efficacy from insufficient communications could affect resource monitoring and park operations that support public use of wilderness. Remote areas with poor radio coverage may not be accessed or comprehensively monitored if safety or logistical issues arise from ineffective or unreliable communications. As a result, important resource data could become less available to park managers when identifying resource conservation needs and strategies. This would ultimately affect the park's ability to preserve the natural condition and other features of value. Similarly, operations that support public use of wilderness could also be inhibited for safety and logistical reasons, which could impact recreation, scientific research, public education, and historic uses. Taking no action may also hinder the ability to safely and effectively monitor the five qualities of wilderness character in remote areas as outlined in the park's Wilderness Character Monitoring Plan.

PART A DECISION: *Is taking administrative action necessary to the management of the wilderness?*

☒Yes **☐No**

Explain: Taking action to improve the park's radio system is necessary to preserve the natural condition of wilderness character and several features of value. Preserving these qualities of wilderness character is dependent on data and information gained from research and monitoring, which require sufficient

and reliable radio communications for safety, logistics, and efficacy. Similarly, wilderness character monitoring as described in the park's Wilderness Character Monitoring Plan also relies on radio communications, as do park operations that support public use of the wilderness resource. Reliable radio communications are also essential to law enforcement and the park's ability to respond to emergency situations, including search and rescue, wildland fire management, and emergency medical responses.

Part B: Determine the minimum activity – *HOW will action be taken (i.e. what methods would be used) and what would be the effects to wilderness character?*

Description of alternative methods taking action: For each alternative, describe what methods and techniques will be used, when and where the action will take place, the general effects to wilderness resources, including all 5 qualities of wilderness character (untrammeled, natural, undeveloped, opportunities for solitude and unconfined recreation, and other features of value), and what mitigation measures are necessary. Strive to craft an alternative with the least or no amount of Section 4(c) of the Wilderness Act prohibited activities. These include temporary roads, the use of motor vehicles, motorized equipment, motorboats, the landing of aircraft, mechanical transport, structures or installations.

ACTION ALTERNATIVE 1:

Action Alternative 1 is part of the preferred alternative (Alternative A) in the EA for the Comprehensive Telecommunications Plan. Under this alternative, improvements to the park's LMR system would include the following actions, including some within recommended wilderness and others that would occur in existing developed areas outside the recommended wilderness boundary. Four of the actions within recommended wilderness are programmatic actions in the Comprehensive Telecommunications Plan/EA because the scope and design are not yet fully developed. The scope and design for programmatic actions in recommended wilderness will be developed with the minimum activity in mind to minimize impacts to wilderness character as much as possible, including exploring all options outside of recommended wilderness. Once the scope and design are developed, programmatic actions will undergo additional project-level review, analysis, and compliance. For actions that occur in recommended wilderness, project-level review will include review of this MRA/programmatic MRDG. If at that time, this MRA/MRDG does not appropriately describe a given programmatic action and the effects to wilderness character, and/or if the scope and design are not in accordance with the "minimum tool" (i.e. methods that would cause the least impact possible to wilderness character) described for this alternative, the action would either be modified to be in accordance with this document or a new MRDG would be prepared to develop implementation methods with the least impact.

Actions Outside Recommended Wilderness

(Note: methods of implementing these actions are not described here because they would not affect recommended wilderness; see the Comprehensive Telecommunications Plan/EA for implementation details.)

- Enable back up radio communications via Radio over Internet Protocol (RoIP) at the Many Glacier Ranger Station.
- Enable NPS backup radio communications via RoIP at the St. Mary Ranger Station.
- Move an LE radio repeater to the existing NPS telecommunications site on Apgar Mountain to improve coverage.
- Install backup power at the existing NPS telecommunications site on Apgar Mountain.

- Increase the height of the NPS tower at the Chief Mountain Port of Entry (POE) to increase NPS radio signal propagation and install an additional repeater.
- Replace the existing equipment pole at Goat Haunt Ranger Station with a 40-foot tower and install an NPS repeater and an RoIP link to improve coverage and enable secure radio communications for NPS law enforcement.
- Install additional microwave data links to improve NPS data/Internet, phone access, and radio and alarm management at East Glacier and Two Medicine.
- Install a radio repeater at the Loop on the Going-to-the-Sun Road to improve NPS radio coverage between zones covered by other repeaters on the west side of the road corridor.

Actions Within Recommended Wilderness

- Replace the existing job-box for the temporary NPS radio repeater on Looking Glass Hill with a manufactured equipment shelter. In 2016, the park installed a temporary repeater on Looking Glass Hill in Glacier's Two Medicine District to address severely limited (frequently impossible) radio communications in the area. Replacing the existing job-box is necessary to provide a more secure environment for the radio repeater, better protecting it from weather, lightning strikes, vandalism, and animal damage. Damage to the repeater can disrupt radio communications. Providing a more secure environment for the equipment is necessary to maintain communications in the Two Medicine area, including within recommended wilderness, until the repeater can be moved to a new location outside recommended wilderness (see below). Replacing the job-box with an equipment shelter is also necessary to minimize the number of helicopter flights to the site to replace damaged equipment. The taller mast would improve radio communications (for both ADMIN and LE) in the Two Medicine area.

  A single-bay communications equipment shelter with a 20-foot mast and three solar panels would be installed to replace the existing job box, two solar panels, and 10-foot equipment pole. The existing job box is approximately 5 feet wide x 3 feet deep x 3 feet tall; the existing solar panels are approximately 3 x 5 feet in size. The new shelter would be approximately 5.5 feet wide x 3.75 feet deep x 5.5 feet tall, with outriggers and leveling jacks that extend the base to an estimated 7 x 7 feet. The three new solar panels would also be approximately 3 x 5 feet in size and would add an estimated 5 to 6 feet of height to the shelter. The new shelter would sit above ground on concrete pads in the same location as the existing job-box. Battery-powered hand tools would be used during installation.

  A helicopter would transport equipment to Looking Glass Hill because the size, weight and sensitivity of the communications equipment would prohibit transport on foot or with livestock. Personnel (an estimated 5-person crew) would hike to the site. The helicopter would deliver equipment by means of long-line sling loads. At this time, an estimated seven round-trip flights over the course of one day would be expected. Following installation, flights would not be expected for routine maintenance (Preventive Maintenance and Inspections do not require helicopter flights) or battery replacements, but could be necessary to replace sensitive equipment; the likelihood of additional flights is low, however, given the proposal to relocate the repeater and all associated equipment outside the park.

- Relocate the NPS Two Medicine repeater on Looking Glass Hill to a site outside the park (programmatic action). Because Looking Glass Hill is within recommended wilderness, the repeater was originally installed on a temporary basis with the intention of identifying a permanent location outside the recommended wilderness boundary. In collaboration with the Blackfeet Tribal Business Council, the park is proposing to move the repeater and associated equipment to an existing telecommunications site on the Blackfeet Reservation adjacent to

Montana Hwy 49, as preliminarily agreed to with the Tribe. Recent developments indicate that this may be possible without the need to first replace the shelter at the current site. The option to replace the shelter is being retained, however, in the event that plans to relocate the repeater are delayed or do not come to fruition. Upgrading the repeater at the current site (described above) would require helicopter flights to transport equipment to the site. Helicopter flights may also be needed to remove the upgraded or existing equipment. This action is included as a programmatic action in the Comprehensive Telecommunications Plan/EA.

- <u>If necessary, install a radio repeater on Elk Mountain to increase NPS radio coverage on the south side of the park</u>. This is a contingency action, implemented only if NPS radio coverage on the south side of the park is not sufficiently improved by actions under this plan together with use of a radio channel in the Middle Fork that is owned by an outside agency but shared with Glacier LE staff. Radio communications on the south side of the park are necessary for the NPS to patrol and manage backcountry trails in the area and east of Scalplock Lookout, and for resource monitoring in this area of the park.

  Installation of a repeater on Elk Mountain will depend on whether communications between NPS personnel travelling the Highway 2 corridor, patrolling backcountry sites in recommended wilderness, or performing other administrative duties in this area of the park are able to clearly and reliably communicate with park Dispatch. Preliminary signal coverage propagation studies indicate that radio coverage along the south side of the park would become more reliable upon relocating the Looking Glass Hill repeater outside the park. Thus, relocating the Looking Glass Hill repeater, among other improvements, could remove the need for a repeater on Elk Mountain.

  A single-bay telecommunication equipment shelter with two solar panels and a 20-foot mast would be placed on or near the summit of Elk Mountain, likely at the former fire lookout site (the foundation and anchor points for the lookout are still present and the shelter could be placed on the old foundation). The dimensions of the shelter would be similar to those described for the equipment shelter proposed for Looking Glass Hill. One LMR antenna (anticipated to be approximately 60 inches tall, 2.75 inches in diameter) would be mounted onto the mast. Battery powered hand tools would be used during installation.

  A helicopter would be required to transport equipment and materials to Elk Mountain because the size, weight and sensitivity of the telecommunications equipment would prohibit transport on foot or livestock, and the remote, steep terrain at the site would be too dangerous for livestock to carry heavy, cumbersome loads. An estimated 6-person work crew would hike to the project site and camp for two nights (using leave no trace practices); the crew would hike in on day 1, the helicopter would deliver the equipment on day 2 in an estimated seven round-trip flights, and the crew would hike out on day 3. The helicopter would deliver equipment by means of long-line sling loads. Following installation, flights would not be expected for routine maintenance (Preventive Maintenance and Inspections would be expected once a year and would not require helicopter flights). In the event of an equipment breakdown, additional flights may be necessary to replace sensitive equipment that cannot be transported by foot or livestock. Battery replacements may require a single helicopter flight every four to five years.

- <u>As opportunity presents, upgrade or install advanced technology or additional equipment at existing NPS telecommunication sites or other NPS administrative sites; remove unnecessary telecommunications infrastructure (programmatic action).</u> Future advances in telecommunications technology may present an opportunity to further improve communications and/or minimize impacts to park resources from telecommunications equipment and infrastructure (e.g. smaller, less visible equipment, or the removal of unnecessary infrastructure). As such opportunities become available and/or as NPS communications needs evolve, the park

may install upgrades or new equipment and infrastructure to existing NPS telecommunication sites or other administrative sites, or could remove existing equipment and infrastructure.

Equipment upgrades could also occur in response to the communication needs of other federal, state, and local agencies, some of which currently co-locate radio equipment on existing NPS telecommunication infrastructure in the park. Equipment would be co-located on existing infrastructure and/or outside of recommended wilderness whenever possible. This action is included as a programmatic action in the Comprehensive Telecommunications Plan/EA and, as such, will require additional project-level review, analysis, and compliance.

- Install temporary scene-of-action (SOA) repeaters as needed (programmatic action). Temporary scene-of-action (SOA) repeaters (also known as tactical or field expedient repeaters) would enable additional, improved, or backup radio communications during short-term non-emergency projects or situations. The park already uses temporary SOA repeaters as needed during search and rescue (SAR) operations or other emergencies in areas where radio coverage is insufficient. Given the expected improvements to radio coverage from actions under this plan, the park does not anticipate that more than three non-emergency SOA repeaters would potentially need to be in operation to supplement radio communications at any one time. Options to site SOA repeaters outside recommended wilderness would be thoroughly explored before they are installed inside recommended wilderness.

  SOA repeaters and associated equipment vary in size but are generally smaller than standard repeaters. If set up in recommended wilderness, SOA repeaters would likely be placed on the ground, possibly in portable equipment cases, a large pack, or similar container with an expandable mast. The set-up may include foldable solar panels or a mounted solar panel assembly. The installation of SOA repeaters in recommended wilderness would not likely require ground disturbance because the repeaters would probably sit directly on top of the ground. Sites where SOA repeaters have been installed would be restored (i.e. revegetated with native plants) if their placement results in disturbance or compaction of soils or vegetation. SOA repeaters would be transported to project sites by foot or livestock whenever possible, but helicopter transport may be necessary for areas where steep terrain is too dangerous for livestock and/or if livestock transport could put the equipment at risk of damage.

  SOA repeaters would be set up on a temporary basis and removed once they are no longer needed; the duration over which they would be onsite would vary from weeks to months, possibly years, depending on the need. SOA repeaters would likely be in use primarily during spring, summer, and fall when most of the park's field activities are underway but could also be used during winter months. This action is included as a programmatic action in the Comprehensive Telecommunications Plan/EA and, as such, will require additional project-level review, analysis, and compliance.

- Install additional permanent NPS radio repeaters if necessary (programmatic action). While not anticipated, radio repeaters may need to be permanently installed in additional areas if other actions taken under the plan do not sufficiently improve radio communications. Should additional permanent repeaters be necessary, they would not be expected at more than three sites. Factors that could lead to additional repeaters include, for example, an increase in NPS operations in areas with limited radio coverage, where additional coverage is needed to support the safety of NPS personnel; continued limited coverage in high visitation areas, including in recommended wilderness, if coverage does not improve as expected from other actions under the plan; and changing technology that may perform better with the removal of repeaters from some areas in exchange for the placement of repeaters in other areas. Options outside recommended wilderness would be thoroughly explored before placing additional repeaters

within recommended wilderness (e.g. if radio signals can be sufficiently propagated to necessary coverage areas from sites outside recommended wilderness or outside the park and, if outside the park, any necessary approvals from outside jurisdictions can be secured). Results from a signal propagation analysis and recent Preventive Maintenance Inspections (PMIs) would also be examined before installing additional repeaters in order to determine whether adjustments to the current system would resolve coverage issues without the need to install additional repeaters in recommended wilderness. The park would also consider whether coverage needs could be met with a temporary SOA repeater before installing additional permanent repeaters in recommended wilderness. Because SOA repeaters are installed on a temporary basis, they would only be used for temporary coverage needs. If necessary as determined by propagation studies and results of PMIs, and if SOA repeaters are not appropriate and no options outside recommended wilderness exist, areas preliminarily identified for possible new repeaters include the Belly River, Nyack, or Two Medicine backcountry areas, or on Mt. Brown, all within recommended wilderness. Implementation methods and the general size, footprint, and specifications of any additional repeaters would likely be as described for the new repeater proposed for Elk Mountain. As with SOA repeaters, any additional permanent repeaters would be transported to project sites by foot or livestock whenever feasible, but helicopter transport may be necessary for areas where steep terrain is too dangerous for livestock and/or if livestock transport could put the equipment at risk of damage. This action is included as a programmatic action in the Comprehensive Telecommunications Plan/EA and, as such, will require additional project-level review, analysis, and compliance.

Impacts to Wilderness Character

There would be no impacts to wilderness character from actions outside of recommended wilderness. For actions within recommended wilderness, the possible installation of additional repeaters in remote areas would negatively affect the undeveloped quality of recommended wilderness and opportunities for solitude because repeater infrastructure would be signs of improvement and human habituation and would be visibly apparent to wilderness recreationists. Effects from SOA repeaters would be temporary, lasting until the repeaters are no longer needed and are removed. Helicopter flights would have temporary negative effects to the undeveloped quality, and to the natural condition since noise from the flights would temporarily interfere with natural sounds and increase the potential to disturb or displace wildlife.

Long-term effects to the natural condition would be beneficial because improved radio communications would support natural resource monitoring programs that provide vital data and information for management decisions concerning natural resource conservation. Similarly, effects to other features of value would be beneficial for the long term because reliable radio communications would support efforts toward monitoring and preserving integral cultural features with historical value and iconic species and features. Depending on the degree of visibility, repeater infrastructure could affect scenic features of value if the sites are later identified as such.

None of the actions would negatively affect the untrammeled quality of recommended wilderness because there would be no intentional manipulation of the biophysical environment. Improved radio communications resulting from Alternative 1 would benefit efforts to monitor wilderness character as described in the park's Wilderness Character Monitoring Plan, including the undeveloped and untrammeled qualities and opportunities for solitude and unconfined recreation.

At Looking Glass Hill, if the shelter is upgraded at the current site, effects would be a continuation of those from existing repeater infrastructure installed on a temporary basis in 2016. The upgraded infrastructure may be more evident, especially in close proximity due to the somewhat larger size of the shelter and taller mast, but would not represent a substantial change from existing conditions (as

described in more detail in the EA). Negative effects to wilderness character at Looking Glass Hill would be temporary, ending once the repeater and associated infrastructure can be moved to a site outside the park, which would have positive effects to the undeveloped quality of wilderness character and opportunities for solitude. Recent developments indicate the repeater may be moved before it is necessary to upgrade the repeater at the current site.

ACTION ALTERNATIVE 2:

Under this alternative, only those actions listed under Alternative 1 that would take place outside of recommended wilderness would be implemented. Actions listed under Alternative 1 that would occur within recommended wilderness would not be implemented under Alternative 2 – the equipment shelter at Looking Glass Hill would not be upgraded at the current site (if the repeater is not located outside the park), and there would be no option to install temporary SOA repeaters or additional permanent repeaters in recommended wilderness. As a result, there would be no new repeater installations or additional helicopter flights within recommended wilderness. The exception would be removal of the temporary repeater at Looking Glass Hill – this action would still occur under Alternative 2, including any helicopter flights that may be needed to remove the equipment, because this action would ultimately benefit wilderness character.

Impacts to Wilderness Character

The absence of an option to install temporary SOA repeaters and possibly permanent repeaters (on Elk Mountain, in the Belly River, Nyack, or Two Medicine backcountry areas, or on Mt. Brown) would limit the park's ability to respond to future coverage needs and unexpected issues or, in the case of SOA repeaters, coverage needs for short-term non-emergency situations. Insufficient coverage as a result could inhibit ongoing research and monitoring of natural and cultural resource, as well as backcountry trails and campgrounds, limiting the availability of information necessary for effective resource management and preservation. This would negatively affect the natural condition and other features of value. Other qualities could also be negatively affected if wilderness character monitoring as outlined in the park's Wilderness Character Monitoring Plan is similarly impacted.

If the repeater at Looking Glass Hill cannot be moved outside the park, failure to replace the existing job box with an upgraded, more secure equipment shelter under this alternative would put the repeater at continued risk of damage from weather, lightening, vandalism, and animals, and could require multiple future helicopter flights to replace damaged equipment. Losing functionality of the Looking Glass Hill repeater would severely limit radio communications in the Two Medicine area, frequently making radio communication impossible. Due to safety concerns and operational impacts, ongoing monitoring natural and cultural resources and backcountry trails and campgrounds in the area could be inhibited, negatively affecting the natural condition of wilderness character and other features of value. Important data and information would not be available to help identify wilderness resource preservation needs and strategies in the area. Wilderness character monitoring as outlined in the park's Wilderness Character Monitoring Plan could also be inhibited.

Removing the repeater from Looking Glass Hill would have temporary negative effects to the undeveloped quality of wilderness character and opportunities for solitude during helicopter operations, but effects to these qualities would ultimately be positive once the structure is removed.

PART B DECISION: *What is the Minimum Activity?*

State the Alternative and rationale. Describe monitoring efforts and mitigations to minimize impacts to wilderness character.

Alternative 1 is selected as the minimum activity for taking action to improve the park's radio communications system. This alternative best meets the need for action identified in Part A of this document because it provides the most effective means of improving the reliability of radio communications. Reliable radio communications are necessary to preserve the natural condition of wilderness character and other features of value. Preserving these qualities is dependent on data and information gained from ongoing research and monitoring, which require sufficient and reliable radio communications for safety, logistics, and efficacy. Wilderness character monitoring as described in the park's Wilderness Character Monitoring Plan also relies on radio communications, as do park operations that support public use of the wilderness resource. While such monitoring programs and public use operations are currently underway, efforts in remote areas where radio communications are insufficient have at times been inhibited due to safety concerns. As a result, the park's ability to manage recommended wilderness can be inhibited by the lack of reliable radio communications.

Alternative 1 includes the possible installation of permanent repeaters in recommended wilderness on Elk Mountain and possibly in the Belly River, Nyack, or Two Medicine backcountry areas, or on Mt. Brown. Alternative 1 is anticipated to resolve current radio system issues without the need to install these additional repeaters. But given the tighter line-of-sight requirements under the digital system and, thus, the additional infrastructure (including repeaters) required to propagate radio signals, this alternative provides the necessary flexibility to ensure reliable radio communications can continue during unforeseen circumstances, especially in remote areas where coverage has typically been insufficient or nonexistent. The inclusion of temporary SOA repeaters in Alternative 1 provides flexibility in addressing coverage issues without permanent installations.

Alternative 2, by comparison, lacks the flexibility described for Alternative 1. This could inhibit research and monitoring of natural and cultural resources and backcountry trails and campgrounds, thus limiting the availability of information necessary for effective resources management and preservation. Alternative 2 also places the Looking Glass Hill repeater at risk in the event that plans to relocate the existing repeater are delayed or do not come to fruition. This could severely limit radio communications in the Two Medicine area, result in additional helicopter flights to replace damaged equipment, and limit the ability of the park to respond to future coverage needs, unexpected issues, and short-term non-emergency situations. Alternative 2, therefore, could cause negative effects to the natural condition and other features of value, and possibly other qualities if wilderness character monitoring in general is impacted.

Mitigations:

- Before installing additional infrastructure and equipment in recommended wilderness, options outside of recommended wilderness will be thoroughly considered and implemented if feasible.
- The park will make every effort to include helicopter flights within the 50-flight limit on administrative flights. Flights will be considered with other proposed administrative flights, coordinated with other projects, and combined with other hauling needs whenever possible.
- Project personnel will hike or travel by horseback to the repeater sites unless conditions are unsafe to do so, or if their transport by helicopter does not result in additional flights or preclude combining the flight with other administrative flights.

- For remote sites without road access, equipment that is small and lightweight enough for packing on foot or livestock will be selected whenever possible to avoid helicopter flights or to reduce the number of flights.
- The park's ID Team, Wilderness Coordinator, and Safety Office will review requests for helicopter support (with the possible exception of emergencies; emergency review will occur if possible).
- The park's Wilderness Coordinator and Trails staff will be consulted for all proposals for helicopter transport to determine if ground transportation is feasible instead. All ground transportation options will be thoroughly explored before helicopter support is approved. Helicopter support will not be used if ground transportation is feasible.
- If helicopter support is necessary, the fewest possible number of flights will be scheduled.
- If only some of the equipment for a given proposal requires helicopter support, the remaining equipment will be hiked in or packed in on livestock unless adding it to the helicopter load does not result in additional flights or preclude combining the flight with other administrative flights.
- A heavy lift helicopter will be used whenever available to carry as much heavy material as possible and reduce the number of flights. More efficient, lower noise models will be preferred.
- Scene of Action (SOA) repeaters and additional permanent repeaters will be sited outside of recommended wilderness whenever possible.
- If additional permanent repeaters are installed within recommended wilderness, the park will attempt to avoid a net gain of installations in recommended wilderness by considering whether another installation could be removed elsewhere if possible (e.g. if technically feasible and doing so does not interfere with other operations).
- All motorized use and new installations will be documented as part of the park's Wilderness Character Monitoring Plan and provided to the Wilderness Coordinator before the end of the calendar year.
- Communications equipment sited inside recommended wilderness will be painted or otherwise disguised to blend with surroundings as much as possible (see Visual Resources mitigation measures).
- Archeological surveys will be conducted as necessary through consultation and coordination with the park's Cultural Resources Specialist.
- If cultural materials are found during project activities, the area of discovery will be avoided and the park's Cultural Resources Specialist will be notified.
- Vegetation trampling and soil compaction will be minimized as much as possible, and sites will be restored if necessary; restoration will occur through coordination with the park's Vegetation Management Specialist
- Project personnel will be trained on appropriate behavior in the presence of bears and other wildlife. Park regulations concerning proper storage of food, garbage, and other attractants will be strictly enforced.
- The following conservation measures as agreed to with the US Fish and Wildlife Service (USFWS) in the park's programmatic biological assessment for administrative flights (NPS 2018) are required for all park administrative flights and will be followed for any flights associated with this plan:

- Flights will follow suggested flight paths away from sensitive areas. Where possible, flight paths will follow road corridors and occur over developed areas.
- Flights will occur between one hour after sunrise and one hour before sunset from 1 May to 1 October to minimize impacts to grizzly bears. Grizzly bear denning activity peaks during den emergence from 15 March to 15 May and during den construction from 15 October to 15 November. No flights will occur over known dens or potential den habitat during den emergence and den construction. In order to conserve prey species, flights will avoid ungulate winter range from 15 January to 1 May when wintering ungulates are most vulnerable.
- Flights will be restricted to the 1 May to 1 October period, or minimized outside that period, to eliminate or minimize impacts to sensitive wildlife.
- The helicopter will fly at a minimum of 2000 feet above ground level (AGL) over the park whenever possible, depending on mountainous topography, weather, and except when it is landing or taking off or delivering supplies via long line.
- To minimize impacts on denning Canada lynx, no flights will be permitted over known den sites from 1 May to 1 September.
- Flight paths will be designated so as to avoid open alpine meadows, talus slopes, or other areas where grizzly bears congregate but do not have access to cover. If a low-level flight or landing is needed in an alpine area and a bear is seen, the flight will be postponed. If the flight cannot be postponed, the flight will keep a maximum distance from the bear(s).

- The flight manager will be responsible for coordinating with the park biologist to identify sensitive sites prior to any flight.
- Once the scope and design for programmatic actions are further developed, those actions will undergo additional project-level review, analysis, and compliance, including review of this MRA/MRDG.
- If this MRA/MRDG does not appropriately describe a given action and the effects to wilderness character, and/or if the scope and design are not in accordance with the “minimum tool” described in this document, the action will either be modified to be in accordance with this document or a new MRDG will be prepared to develop implementation methods with least impact and appended to this document.

APPROVALS

Recommended: **Yes** BRB **No**___
Comment:

BRADLEY BLICKHAN Digitally signed by BRADLEY BLICKHAN Date: 2021.11.03 14:00:15 -06'00'

GLAC Wilderness Coordinator _____ Date

Recommended: **Yes** ☑ **No** ☐
Comment:

PHILIP WILSON Digitally signed by PHILIP WILSON Date: 2021.11.12 09:12:49 -07'00'

GLAC Chief of Science and Resource Management _____ Date

Recommended: **Yes** ☑ **No** ☐
Comment:

PETER WEBSTER Digitally signed by PETER WEBSTER Date: 2021.11.15 14:56:35 -07'00'

GLAC Deputy Superintendent _____ Date
